Amendments to the Claims:

20. (currently amended) A method for forming an interconnect structure on a substrate, the method comprising the steps of:

depositing a dielectric material on the substrate, thereby forming a dielectric layer,

depositing a hardmask material on said dielectric layer, thereby forming a hardmask layer, said hardmask layer having a top surface;

forming at least one opening in said dielectric layer;

filling said opening with a conductive material, thereby forming at least one conductor, said conductor having a surface coplanar with the top surface of said hardmask ~~dielectric~~ layer;

depositing a first material on said conductor, thereby forming a first cap layer, wherein said first material is deposited by a high density plasma chemical vapor deposition (HDP CVD) process; and

depositing a second material on said first cap layer, thereby forming a second cap layer, wherein said second material is deposited by a plasma-enhanced chemical vapor deposition (PE CVD) process.

21. (canceled)

22. (canceled)

23. (currently amended) The method according to Claim 20~~21~~, wherein said first material is silicon nitride, and said HDP CVD process includes placing the substrate into a reactor chamber at a pressure of about 0.1 milli-torr to about 50 milli-torr and at a temperature of about 200°C to about 500°C, and exposing the substrate to at least one gas selected from the group consisting of silane, nitrogen, argon and helium.

24. (currently amended) The method according to Claim 2022, wherein said second material is silicon nitride, and said PE CVD process includes placing the substrate into a reactor chamber at a pressure of about 0.1 torr to about 10 torr and a temperature of about 150°C to about 500°C, and exposing the substrate to at least one gas selected from the group consisting of silane, ammonia, nitrogen and helium.

25. (original) The method according to Claim 20, wherein said first material is deposited by a HDP CVD process under vacuum and said second material is deposited by a PE CVD process under vacuum, without exposing the substrate to atomospheric pressure prior to deposition of said second material.

26. (original) The method according to Claim 20, further comprising, after formation of said conductor and prior to deposition of said first material, the step of:

performing a plasma pre-cleaning process which includes heating the substrate to a temperature of about 150°C to about 500°C and exposing the substrate to a source of hydrogen for a time of about 5 to about 500 seconds.

27. (previously presented) The method according to Claim 20, further comprising the step of depositing a conductive liner in said opening prior to filling said opening with said conductive material.

28. (previously presented) The method according to Claim 20, further comprising the step of depositing an adhesion promoter layer on the substrate prior to depositing said dielectric material on the substrate.

29. (previously presented) The method according to Claim 20, wherein said dielectric layer is formed of an organic thermoset polymer having a dielectric constant of about 1.8 to about 3.5.

30. (previously presented) The method according to Claim 20, wherein said dielectric layer is formed of a polyarylene ether polymer.

31. (previously presented) The method according to Claim 20, wherein said first cap layer is formed of a dielectric material selected from the group consisting of silicon nitride, silicon carbide and boron nitride.

32. (previously presented) The method according to Claim 20, wherein said first cap layer is formed of silicon nitride having a composition of about 40 atomic % silicon, about 52 atomic % nitrogen, and about 8 atomic % hydrogen.

33. (previously presented) The method according to Claim 20, wherein said second cap layer is formed of a dielectric material selected from the group consisting of silicon nitride, silicon carbide and boron nitride.

34. (previously presented) The method according to Claim 20, wherein said second cap layer is formed of silicon nitride having a composition of about 37 atomic % silicon, about 48 atomic % nitrogen, and about 15 atomic % hydrogen.

35. (previously presented) The method according to Claim 20, wherein said second cap layer is formed of silicon carbide having a composition of about 27 atomic % silicon, about 36 atomic % carbon, and about 37 atomic % hydrogen.

36. (previously presented) The method according to Claim 20, wherein said second cap layer is formed of amorphous hydrogenated nitrogenated silicon carbide having a composition of about 22 to 30 atomic % silicon, about 15 to 30 atomic % carbon, about 10 to 22 atomic % nitrogen and about 30 to 45 atomic % hydrogen.

37. (previously presented) The method according to Claim 20, wherein said conductive material is copper.

38. (previously presented) The method according to Claim 20, wherein said second cap layer comprises a plurality of thin films each formed by a plasma-enhanced chemical vapor deposition (PE CVD) process.

39. (previously presented) The method according to Claim 38, wherein the plurality of thin films comprises at least one silicon nitride film and at least one film selected from the group consisting of silicon oxide, silicon carbide, boron nitride, silicon oxycarbide and silicon oxycarbonitride.